

OTTAWA ADDITIONS

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# Foundations & Footings

Questions about foundation types, frost line requirements, underpinning and structural support for additions

17 Expert Answers from Addition IQ

[ottawaadditions.com/construction-brain](https://ottawaadditions.com/construction-brain)

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## Should I test for radon under a new Ottawa addition?

Radon testing is absolutely something you should do before, during, and after adding to your Ottawa home — and the local context makes this more important than most homeowners realize.

### Radon and Ottawa Home Additions

Ottawa and the surrounding region sit in one of Canada's higher-risk zones for radon gas. Radon is a naturally occurring radioactive gas produced by the decay of uranium in soil and rock. It seeps upward through the ground and accumulates in enclosed spaces, particularly basements and lower-level rooms. Health Canada's action level is **200 becquerels per cubic metre (Bq/m<sup>3</sup>)** — concentrations above this level warrant mitigation. Ottawa's geology, including the clay-rich Leda soils deposited by the ancient Champlain Sea, creates conditions where radon can migrate unpredictably, and studies have found elevated readings across many Ottawa neighbourhoods, including areas in Gloucester, Nepean, Kanata, and Barrhaven.

When you build a home addition, you are creating new pathways for radon to enter your home. Any new foundation — whether a full poured concrete foundation, a crawl space, or even a slab-on-grade — introduces new contact between your living space and the soil below. Ottawa's **1.2 to 1.5 metre frost line** means your footings go deep, and that depth puts the foundation in direct contact with soil layers where radon concentrations tend to be higher. Even a well-poured concrete foundation has micro-cracks, cold joints, and penetrations for drains and utilities that radon can exploit.

The timing of your testing matters significantly. You should ideally test your existing home before construction begins to establish a baseline reading. This tells you whether you already have a radon problem and informs the design of your addition. If your existing basement already reads above **100 Bq/m<sup>3</sup>**, you should plan radon-resistant construction into the addition from the start — it is far less expensive to install a sub-slab depressurization rough-in during construction (typically **\$500 to \$1,500**) than to retrofit one after the fact (typically **\$2,500 to \$5,000** or more). A rough-in involves laying perforated pipe beneath the slab and running a sealed pipe to the exterior, so a fan can be added later if needed.

After your addition is complete and the space has been enclosed and conditioned for at least **three months**, you should run a long-term radon test using a certified alpha-track detector. Long-term tests (90 days or more) give you a far more accurate picture than short-term tests, which can be skewed by weather, seasonal pressure changes, and construction-related soil disturbance. Ottawa's cold winters actually tend to increase radon accumulation because homes are sealed tight against the cold, reducing natural air exchange — so testing through the winter months gives you a realistic worst-case reading.

From a practical standpoint, radon-resistant construction features add very little cost when built in from the start. A gravel sub-base beneath the slab, a polyethylene vapour barrier, sealed penetrations, and a passive depressurization pipe rough-in are standard good-practice details that many experienced Ottawa contractors already include. Ask your addition contractor directly whether they incorporate radon-resistant construction practices — it is a reasonable and increasingly common expectation.

Radon testing kits are available through Health Canada's online portal and at many Ottawa hardware stores for **\$30 to \$60** for a long-term test. Certified radon measurement professionals and mitigation contractors can be found through the Canadian National Radon Proficiency Program (C-NRPP) directory. For your addition contractor and any HVAC or mechanical trades involved in your project, you can also browse the Ottawa Construction Network directory at [justynrookcontracting.com](https://justynrookcontracting.com) — a well-rounded addition team will understand radon's role in Ottawa construction and can help you plan accordingly.

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## Q2

### How deep do footings go for an Ottawa addition?

Footings for a home addition in Ottawa must reach a minimum depth of **1.2 to 1.5 metres below finished grade** — and in practice, most experienced local contractors target the deeper end of that range to provide a safety margin against frost penetration. This is one of the most critical and often underestimated aspects of addition construction in Ottawa, and it directly affects your budget, your timeline, and the long-term stability of your new space.

#### Why Ottawa's Frost Line Demands Deep Footings

Ottawa's extreme continental climate is the driving force behind this requirement. Winter temperatures regularly drop to **minus 25 to minus 30 degrees Celsius** and can stay there for weeks at a time. When the ground freezes, moisture in the soil expands and creates upward pressure called **frost heave**. If a footing sits above the frost line, that heaving force can lift and crack your foundation, causing structural damage to both the addition and its connection to your existing home. The Ontario Building Code mandates that all footings extend below the maximum frost penetration depth for the region — and Ottawa's depth is among the deepest requirements in any major Canadian city.

Leda clay soil, which underlies much of Ottawa including large portions of Kanata, Barrhaven, Orleans, and Gloucester, adds another layer of complexity. This ancient marine clay is sensitive to disturbance and has variable drainage characteristics. In Leda clay areas, engineers sometimes specify **wider footings or engineered foundation systems** to distribute loads more effectively, which adds cost but is essential for long-term

performance. If your property sits near the Ottawa River, in Constance Bay, Cumberland, or parts of Rockland, additional soil assessment may be warranted before finalizing your foundation design.

For a typical single-storey room addition, you can expect **poured concrete footings at 1.2 to 1.5 metres deep**, with the footing itself typically 300 to 400 millimetres thick and 500 to 600 millimetres wide depending on the load it carries. The foundation wall then rises from that footing to grade level, and the total concrete cost for a standard addition foundation runs approximately **\$200 to \$250 per linear foot** for poured concrete, plus **\$15 to \$25 per linear foot** for waterproofing membrane and drainage tile — both of which are essential in Ottawa's clay soils.

For second-storey additions, the footing design becomes more involved because the existing foundation must be assessed to confirm it can handle the additional load. A structural engineer's assessment is not optional here — it is a requirement for your building permit application and protects you from discovering mid-project that reinforcement is needed.

From a timing perspective, footing excavation in Ottawa ideally begins in **late April or early May** once the frost has cleared from the ground. Starting too late in the season risks pouring concrete in cold weather, which requires expensive heated enclosures and careful curing procedures to prevent quality issues. The City of Ottawa building permit process takes **4 to 8 weeks** for straightforward additions, so submitting your permit application in February or March keeps you on track for a May start.

A practical tip: ask any contractor quoting your project to specify the exact footing depth and dimensions in their proposal. Vague references to "code minimum" footings should prompt follow-up questions, especially if your lot has clay soil or drainage concerns.

For help finding experienced addition contractors familiar with Ottawa's foundation requirements, the **Ottawa Construction Network directory at [justynrookcontracting.com](https://justynrookcontracting.com)** is a good place to start browsing local professionals.

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Q3

## How does Ottawa's Leda clay soil affect the foundation design for my addition?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Justyn Rook Contracting

- RenoMotion Inc.
- Somar Contracting Inc.
- Dump n Dash Hauling
- Prism Services

[View all contractors ?](#)

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Q4

## What type of foundation waterproofing do I need for an addition in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Justyn Rook Contracting
- RenoMotion Inc.
- Prism Services
- Best Hand2Hand moving company
- M.O.T. CONSTRUCTION INC.

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Q5

## Should I use helical piles instead of a poured foundation for my Ottawa addition?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- 613Bins
- RenoMotion Inc.
- Estra Design
- Jaiko Cleaning Services
- Prism Services

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Q6

## How do I protect a new addition foundation from frost heaving in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Homeupgraders
- RenoMotion Inc.
- Nic's D.U.C.T Works Inc
- Vanguard Environmental
- L.L. Renovation

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Q7

## Is my existing foundation strong enough to support a second storey in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- 613Bins
- JC Carpentry
- Humble Homes - property maintenance
- ARTEXPRO Tile & Finishes
- Geerts Roofing Inc

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Q8

## What is the best foundation type for a sunroom addition in Ottawa's freeze-thaw climate?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Homeupgraders
- RenoMotion Inc.
- ALM Construction & Landscaping Inc.
- Estra Design
- Floor-2-Wall Inc

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Q9

## Can I build an addition near the Ottawa River without flood zone foundation upgrades?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- 613Bins
- JC Carpentry
- BFI Renovations
- ALTIOR CONSTRUCTION
- JMY Renovations

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Q10

## Do I need weeping tile around a new addition foundation in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Homeupgraders
- RenoMotion Inc.
- Floor-2-Wall Inc
- Dreamwood Construction & Renovations
- Geerts Roofing Inc

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Q11

## What is frost-protected shallow foundation and can I use it for my Ottawa addition?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Homeupgraders
- JC Carpentry
- Geerts Roofing Inc
- Humble Homes - property maintenance
- The Next Reno

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Q12

## How do I handle drainage around a new addition on Ottawa's clay soil?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Luxe Painting and Renovations
- JC Carpentry
- Regimbal
- M.O.T. CONSTRUCTION INC.
- Home Front Services

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Q13

## Should I install a sump pump in my new addition's foundation in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Justyn Rook Contracting
- JC Carpentry
- Valcor Construction
- Estra Design
- Humble Homes - property maintenance

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Q14

## Can concrete be poured for a foundation in November in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Luxe Painting and Renovations
- JC Carpentry
- Somar Contracting Inc.
- Denys Builds Designs Renovations
- Callandgone

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Q15

## Can I build an addition on a slab foundation in Ottawa or do I need a full basement?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Luxe Painting and Renovations
- JC Carpentry
- Denys Builds Designs Renovations
- Vanguard Environmental
- Nic's D.U.C.T Works Inc

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Q16

## What is the frost line depth in Ottawa and how does it affect my addition foundation?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Justyn Rook Contracting
- JC Carpentry
- Prism Services
- ALM Construction & Landscaping Inc.
- Grunt Work 4 Grunts

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Q17

## How deep do footings need to be for a home addition in Ottawa?

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**Looking for experienced contractors?** The Ottawa Construction Network connects homeowners with qualified professionals:

- Homeupgraders
- JC Carpentry
- ARTEXPRO Tile & Finishes
- Vanguard Environmental
- Demontigny Carpentry

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